DOCUMENT RESUME

ED 400 521 CS 012 631

AUTHOR McKenna, Michael C.; And Others
TITLE Using Electronic Storybooks with Beginning Readers. Instructional Resource No. 39.
INSTITUTION National Reading Research Center, Athens, GA.; National Reading Research Center, College Park, MD.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 96
CONTRACT 117A20007
NOTE 6p.
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Beginning Reading; *Childrens Literature; Classroom Techniques; Educational Trends; Elementary Education; *Emergent Literacy; *Instructional Innovation; Reading Instruction; *Reading Material Selection
IDENTIFIERS *Electronic Books

ABSTRACT

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ED 400 521

Using Electronic Storybooks with Beginning Readers

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Michael C. McKenna
Georgia Southern University
David Reinking
Linda D. Labbo
Janet H. Watkins
University of Georgia

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National Reading Research Center
Instructional Resource No. 39
Fall 1996

Abstract. ***The increasing number of computerized storybooks now commercially available to teachers raises important questions about appropriate ways to make use of them in classrooms. This instructional resource offers suggestions that will help classroom teachers effectively incorporate these powerful resources into their instruction. It also summarizes research evidence about how electronic storybooks affect students' literacy development, it offers a glimpse at future developments educators can expect.***

As computerized children's books become available in greater numbers, questions arise about how best to integrate them into reading instruction. Such electronic books typically present popular trade titles in a multimedia format, complete with the original illustrations. Computerized books are appealing for several reasons.

- They support the reader by providing digitized pronunciations, listening versions, glossary entries, and other resources. These can be thought of as *electronic scaffolds* to be used at the reader's discretion.
- They enable beginning readers to read books at or near their listening levels, because unfamiliar words in print can be pronounced on demand and with mimimal interruption.
- They afford motivating features such as animation, sound effects, and game-like formats.
- They invite instructional links to the printed versions of the trade books.

Electronic books vary considerably in design. Some, such as those produced by Discis, are for the most part linear computerizations of the printed versions. Readers are supported as they make their way through the text in a straightforward, conventional fashion. Others, such as the Living Books series produced by Broderbund, offer many other options, such as second-language versions and the choice of "playing" with hidden games and special effects.

The increasing number of computerized titles, along with more efficient means of storing and accessing them electronically, point to a time in the near future when an abundance of children's literature will be available in computerized form. The purpose of this Instructional Resource is to offer guidelines to elementary teachers who have access to computerized books. Some research has been conducted into instructional applications of electronic trade books, and we offer the following guidelines on the basis of emerging research findings.

1. *Clarify your goals for using computerized books.* Computerized trade books have the potential to help achieve a variety of goals. They can make reading less frustrating and therefore more enjoyable. They can provide decoding practice as students make progress towards fluency (Miller, Blackstock, & Miller, 1994; Reitsma, 1988). They can help students acquire a more extensive sight vocabulary (McKenna, Reinking, Labbo, & Watkins, 1996). Or, they can provide effective individual support for problem readers (Olson, Foltz, & Wise, 1986). Instructional practice designed to achieve these goals will vary accordingly. Computerized books can be used by individual students working alone (perhaps in the context of a learning center). They can also provide the focus for small groups of children, or they can serve as a centerpiece for whole-class instruction.

What is less clear is whether the affective and aesthetic impact of electronic books can match what we associate with printed books. Does computerization jeopardize the literary quality, appeal, and charm of the originals? We believe that electronic books, particularly those that faithfully capture the format of their print counterparts, pose no threat to the aesthetic development of children. Indeed, by removing the frustrations of decoding, such books promise to make the opportunities for such development more frequent for beginning readers. Teachers concerned about this issue might use the electronic and print versions as the basis of critical comparisons designed to develop an aesthetic sense in young readers.

2. *Consider what the software expects students to be able to do.* Reading computerized books is comparable in many ways to reading the print versions of the same books. The reader must have acquired certain concepts about print, such as its left-to-right directionality, the difference between print and illustrations, a notion of where word boundaries are located, and an understanding that it is necessary to proceed through the book page by page. Students who are unfamiliar with these concepts will find computerized trade books just as perplexing as the printed versions. On the other hand, such books can provide excellent reinforcement of these concepts once they have been initially introduced by a teacher. This reinforcement can constitute a worthwhile goal for using the books with prereaders.

We have found some evidence that children will acquire sight words after repeatedly accessing the pronunciations of those words (McKenna, Reinking, Labbo, & Watkins, 1996). That is to say, the more times a child clicks on an unfamiliar word in order to hear it pronounced, the more quickly that word will enter a child's sight vocabulary. This finding supports the use of computerized books in the pri-

mary grades. However, we have also found that sight word gains will only result for those children who have acquired a good working knowledge of the alphabet and an adequate notion of word boundaries. In other words, if word recognition is to be an instructional goal, then teachers must determine whether students have the prerequisite awarenesses to achieve that goal—namely, adequate concepts of print and thorough alphabet knowledge.

3. ***Encourage attention to print.*** An inherent danger in the use of computerized books is that the audiovisual effects might distract children from actually reading the text. This is true not only of the special features built in for their appeal but even of the listening versions, in which the text is merely read aloud. Children cannot be expected to pay close attention to text while it is being read aloud to them. If a teacher's goal is to use the software as a recreational outlet that happens to have a connection with reading, then perhaps these limitations are acceptable. However, most teachers will want to use the electronic versions of books as a means of reinforcing the skills of reading, in which case built-in distractions can severely limit what students achieve. Some versions of computerized books allow a teacher to negate this limitation by disabling the option of hearing the entire story read aloud.

These distractions can also be minimized by appropriate planning and by clarifying for children a few basic rules. To begin with, the listening version available in most CD-ROM storybooks is probably a good place to begin since the storyline can be introduced in a comprehensible way. Thereafter, however, students should be expected to read the computerized book, even if it means accessing the pronunciation of every word in sequence. If the computerized version has an "explore" or "play" option, in which the student is free to explore the illustrations in search of interesting special effects, then this option should be made available before the child is asked to read the book attentively. Expecting children to attend to print amid the temptation to play is unrealistic.

In short, the use of computerized books is likely to be most effective in promoting word recognition when the time spent attending to words is maximized. This means monitoring children as they interact with the software. Looking over a child's shoulder to ensure that there is a left-to-right progression is far preferable to leaving children to their own devices.

4. ***Choose appropriate books.*** As the number of high-quality titles increases, it will be necessary to make choices about which electronic trade books children should be exposed to. For children in the primary grades, we offer two recommendations. The first is to select books at or near a child's listening level. The instructional reading level is apt to be too low an estimate in light of the extensive decoding support these books provide. The second suggestion is to avoid highly predictable books. The support beginning readers derive from predictable features such as repeated phrases and rhyming patterns is not needed in electronic books, which may help children move away from heavy reliance on context toward a more mature approach en route to fluency.

Planning the Use of Electronic Books

How can electronic trade books best be incorporated into classroom instruction? The decoding support they provide makes it possible for even beginning readers to work independently. This means that a variety of options is available to teachers for making effective use of such books. A few of these include:

- building a directed reading activity around an electronic book, complete with pre- and postreading phases;
- allowing students to explore electronic titles independently and individually, to the extent that such titles are available;
- arranging for students to repeatedly read electronic titles so that the benefits of repeated readings can be realized without the need for close teacher monitoring;
- allowing students to explore specific electronic books following a reading lesson based on a print selection, such as a basal reader selection (depending again on the availability of related titles).

Another decision involves how the use of electronic books will be structured. The location and availability of hardware will of course be an important consideration, but not the only one. Some possibilities include:

- using a projection device for direct instruction to the entire class, similar to the use of big books;
- establishing one or more learning centers, in which individual students or small groups can make use of one or more stand-alone machines while other students engage in different center-time activities;
- arranging for students to use the electronic books in a lab setting, where titles might be accessed through a file server or through individual machines that are not networked.

These decisions should be made in light of the four guidelines offered in this instructional resource. Our explorations through the National Reading Research Center into how electronic books might be used in classrooms suggest that any of the configurations above can be useful. Two examples might illustrate how teachers can structure the use of these new resources in order to meet the instructional needs they have identified.

In one instance, several teachers of ungraded K–1 classrooms arranged for their students to visit a microcomputer lab for daily half-hour sessions. Over the course of 6 weeks, the children were introduced to 20 different electronic books. The time they spent in the lab was a part of their 2-hour language arts block and replaced time typically spent in self-selected reading. Students who began the lab visits with adequate print concepts and with at least a few sight words acquired considerably more new sight vocabulary words than did comparable children in control classrooms.

In another instance, a second-grade teacher established a learning center involving the only microcomputer in her classroom. Two of her least-able readers (children with whom she had tried a variety of conventional approaches) were encouraged to explore the same 20 titles. Both of these problem readers made substantial progress, and in one case the results were dramatic.

These examples suggest a wide range of effective applications. They can entail one machine or many. They can serve developing readers or those experiencing difficulties. They can involve classrooms or lab settings. To date, the only major limitation on the effectiveness of electronic books appears to be whether the youngest readers possess an adequate grounding in the print concepts.

What the Future Holds

As the nature of electronic books continues to evolve, it is difficult to prescribe fixed guidelines for their use. It is just as difficult to predict the course that their evolution may take. We believe that likely developments will include the following, however, and their mention here suggests a growing role for electronic books in the literacy acquisition of children.

1. *More titles*. The number of trade books available in electronic form is apt to increase greatly especially as the hardware present in schools becomes more conducive to their use.

2. *Networked availability*. School library media centers may well house hundreds, perhaps thousands, of high-quality titles available through local area networks.

Broadly based browsing and exploration will then be possible for children.

3. ***Record keeping capacity***. As children read electronic books, records can automatically be kept of their experience, even to the point of which words they access and with what frequency. Prescriptions can then be made in wide-range dimensions, from follow-up skill work to recommendations of other titles that might appeal to a particular child.

4. ***Changes in the genre***. As the number and range of titles increase and as they begin to occupy a more central place in classrooms, it is likely that electronic versions will in many cases become the version of first choice by children's authors (see Reinking, 1994). Resemblance to printed books may consequently be obscured, perhaps through abandoning the simulation of pages and through greater use of animation and quick-time movies.

5. ***Innovations in response to literature***. Electronic books of the near future may well incorporate novel options for allowing children to respond to what they read. Examples include altering or creating illustrations, constructing book reports in tandem with the software, and exploring related works under the guidance of the computer.

6. ***Voice recognition***. The perfection of voice recognition technology will permit situations in which children read electronic books aloud and receive assistance immediately, without the necessity of clicking on words. This oral rendering can be analyzed for miscues and the analysis made available at any time for teacher inspection.

Such changes promise to transform the peripheral role currently played by electronic books into one of increasing prominence. Their prudent use clearly holds great potential for supplementing what teachers do to foster literacy growth in classrooms.

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The work reported herein is a National Reading Research Project of the University of Georgia and University of Maryland. It was supported under the Educational Research and Development Centers Program (PR/AWARD NO. 117A20007) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The findings and opinions expressed here do no necessarily reflect the position nor policies of the National Reading Research Center, the Office of Educational Research and Improvement, or the U.S. Department of Education.

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